

AMENDMENTS TO THE SPECIFICATION

Please amend the specification as follows:

Amend the paragraph beginning on page 7, line 21 as follows:

Fig. 5 is a structural view showing an example of the embodiment of this invention in which an A/D converter is constructed by an AB (Aharonov-Bohm) effect element using a fine vacuum tube. In Fig. 5, 7 represents cathodes arranged in a vacuum. 8 represents anodes. Between these cathodes 7 and cathodes 8, splitting units (slits) 9 for bisecting a flow of electrons emitted from the cathode 7 are arranged. Magnetic field generating units 10 are arranged between the splitting units 9 and the cathodes 8. ~~This~~ These magnetic field generating units 10 are formed in such a manner that the ratio of the intensity of their magnetic fields based on an input current is 1:2:4:8.

Amend the paragraph beginning on page 9, line 9 as follows:

Generally, in the case of preparing an advanced function-integrated apparatus for image processing or signal code conversion such as an MPEG-AVI encoder, approximately 500 such logical circuits are necessary. In an integrated circuit made up of conventional logical circuits using transistors, 40 to 50 transistors per logical circuit are needed, and a total of 20,000 to 25,000 transistors are needed. However, if logical circuits as described above are used, one vacuum ~~elements~~ element suffices for one logic, and an integrated circuit can function with

Amendment

Application No. 10/767,167

Attorney Docket No. 042054

approximately 500 vacuum elements. (An image of such an integrated circuit is as shown in Fig.

3.)